

Remarks

Claims 15, 23, 24, and 26-28 are now pending in this application. Applicants have amended claims 23, 24, and 28, and canceled claim 25 to clarify the present invention. Applicants respectfully request favorable reconsideration of this application.

The Examiner rejected claims 15, 23-25, and 28 under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent 6,697,681 to Stoddard et al. in view of U.S. patent 6,522,949 to Ikeda et al. The Examiner rejected claims 26 and 27 under 35 U.S.C. § 103(a) as being unpatentable over Stoddard et al. in view of Ikeda et al. and further in view of U.S. patent 6,587,749 to Matsumoto.

The combination of Stoddard et al. and Ikeda et al. does not suggest the present invention as recited in amended independent claims 23 or 28, since, among other things, Stoddard et al. does not suggest a control system for controlling movements of a plurality of manipulators that includes a plurality of drive modules, one for each manipulator and each including a drive unit, a power supply and an axis computer. Additionally, Stoddard et al. does not suggest a main computer that supplies control instructions to two drive modules. Stoddard et al. suggests a handheld operating unit that communicates with a robot through a main control unit as shown in Fig. 1. The operating unit does not contain an axis computer or a drive unit, does not supply the robot with power, and does not carry out orders from a main computer. Rather, Stoddard et al. suggests a main computer that carries out instructions from the operating unit 10.

The Examiner cites Ikeda et al. as suggesting planning movement paths, generating orders based on the movement paths and a main computer module including a casing surrounding the main computer module. These elements do not suggest the elements of the present invention as recited in claim 23 that Stoddard et al. does not suggest. Accordingly, the combination of Stoddard et al. and Ikeda et al. does not suggest the present invention as recited in amended independent claims 23 or 28, or claims 15 and 23-25, which depend from claim 23.

The combination of Stoddard et al., Ikeda et al. and Matsumoto does not suggest the present invention as recited in claims 26 or 27, which depend from claim 23, since, among other things, Matsumoto does not overcome the above-described deficiencies of Stoddard et al. or Ikeda et al. For example, Matsumoto does not suggest a control system for controlling movements of a plurality of manipulators that includes a plurality of drive modules, one for each manipulator and each including a drive unit, a power supply and an axis computer. The Examiner only cites Matsumoto as suggesting a transformer module that includes a transformer and a casing surrounding the transformer module and power supply. Such does not suggest the above-discussed elements of the present invention recited in claims 26 or 27. Therefore, the combination of Stoddard et al., Ikeda et al. and Matsumoto does not suggest the present invention as recited in claims 26 or 27.

Among advantages of the present invention as recited in the claims are separate main computer and drive modules that are separate from the main computer and from each other. This provides the present invention with increased flexibility as compared to traditional systems. For example, it is easier to add another robot to a system according to the present invention as recited

in claim 23. The communications network facilitates the addition or deletion of manipulators. This eliminates the need to have an oversized and overpowered control system.

Additionally, each drive module including a power supply to power the robot that the drive module is associated with permits the present invention as recited in claim 23 to avoid the need for bulky and expensive power cables between a robot control and the robot motors. This is accomplished by including physically separate main computer modules and drive modules, which are connected by a communications network, which can be accomplished with relatively thin, flexible and inexpensive cables. With only a communications network necessary to connect the main computer and drive modules, the main computer and drive modules may be separated by greater distances than if power cables were required to make the connections. The present invention as recited in claim 23 makes it possible to locate drive modules within a robot workcell, close to the robot, thereby minimizing the amount of power cables necessary. A robot workcell is typically surrounded by a safety fence. The present invention as recited in claim 23 also permits the main computer to be located outside of the robot workcell within reach of and easy access by the operator.

In view of the above, the references relied upon in the office action, whether considered alone or in combination, do not suggest patentable features of the present invention. Therefore, the references relied upon in the office action, whether considered alone or in combination, do not make the present invention obvious. Accordingly, Applicants respectfully request withdrawal of the rejections based upon the cited references.

In conclusion, Applicants respectfully request favorable reconsideration of this case and early issuance of the Notice of Allowance.

If an interview would advance the prosecution of this case, Applicants urge the Examiner to contact the undersigned at the telephone number listed below.

The undersigned authorizes the Commissioner to charge fee insufficiency and credit overpayment associated with this communication to Deposit Account No. 22-0261.

Respectfully submitted,

Date: 4/23/08



Eric J. Franklin, Reg. No. 37,134
Attorney for Applicants
Venable LLP
575 7th Street, NW
Washington, DC 20004
Telephone: 202-344-4936